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APPLICATION ELEMENTS

1. ☒ Fee Transmittal Form
2. ☒ Specification [Total Pages 35]
 (preferred arrangement set forth below)
 - Descriptive title of the Invention
 - Cross References to Related Applications
 - Statement Regarding Fed sponsored R & D
 - Reference to Microfiche Appendix
 - Background of the Invention
 - Brief Summary of the Invention
 - Brief Description of the Drawings (if filed)
 - Detailed Description
 - Claim(s)
 - Abstract of the Disclosure
3. ☒ Drawing(s) (35 USC 113) [Total Sheets 11]
4. ☒ Oath or Declaration [Total Pages 3]
 a. ☐ Newly executed (original or copy) ☐ Unexecuted
 b. ☐ Copy from a prior application (37 CFR 1.63(d))
 (for continuation/divisional with Box 18 completed)
 [Note Box 5 below]
 i. ☐ **DELETION OF INVENTOR(S)**
 Signed statement attached deleting inventor(s)
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 and 1.33(b).
5. ☐ Incorporation By Reference (useable if Box 4b is checked)
 The entire disclosure of the prior application, from which a copy
 of the oath or declaration is supplied under Box 4b, is considered
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 a. ☐ Computer Readable Copy
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ACCOMPANYING APPLICATION PARTS

8. ☒ Assignment Papers (cover sheet & document(s))
9. ☐ 37 CFR 3.73(b) Statement ☐ Power of Attorney
 (when there is an assignee)
10. ☐ English Translation Document (if applicable)
11. ☐ Information Disclosure ☐ Copies of IDS Citations
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12. ☐ Preliminary Amendment
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18. If a CONTINUING APPLICATION, check appropriate box and supply the requisite information:

☐ Continuation ☐ Divisional ☐ Continuation-in-part (CIP) of prior Application No. _____/_____, filed _____.
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SPECIFICATION

Title of the Invention :

APPARATUS AND METHOD FOR RECEIVING IMAGE

Inventor(s) :

Kyoji SAITO

Apparatus and method for receiving image

Background of the invention

Field of the Invention

The present invention relates to an apparatus and
5 a method for receiving an image.

Description of the Related Art

In the apparatus on the receiving side such as a personal computer etc., that receives E-mail to read, all received E-mail data is stored to a secondary storage
10 device, which the apparatus has, regardless of the apparatus on the sender side and the content, and the user confirms the content, thereafter printing, displaying (hereinafter referred to as outputting) data. In this case, the user reads the contents of error mail
15 and delivery status notification mail without distinguishing them from normal E-mail so as to make a distinction therebetween.

While, there has been in practical use Internet facsimile apparatus (hereinafter referred to as IFAX)
20 that performs data transmission and reception over the Internet using E-mail as disclosed in, for example, Unexamined Japanese Patent Publication No. 8-242326 and its corresponding USP 5,881,233.

The IFAX converts binary image data to text data
25 format and appends it to E-mail to transmit. Then, if there is an appending file in E-mail, the receiving side decompresses it and prints out it. Namely, instead of

outputting received data after the user reads the data, arrived data is sequentially printed out and the user reads the printed data. This feature is similar to that of the normal facsimile, e.g. G3 facsimile.

5 In conventional IFAX, all of header information, document information, and image data included in the received data are printed out without making a distinction among kinds of received data. However, there is a case in which data having no value for printing is
10 included depending on the kind of E-mail.

For example, in a case where received mail data is error mail, image data remains as it is converted to the text format. Then, if error mail is printed out without distinguishing it from normal E-mail, the large amount
15 of information, which is incomprehensible and unnecessary to the receiver, is printed out. As a result, the user cannot identify the original document and this will result in a waste of resources such as recording paper.

20 The applicant of the present invention has proposed an error mail discriminating method in Unexamined Japanese Patent Publication No. 11-15755, its corresponding US Patent Application Number 09/099,528 and its corresponding EP 0 923 034 A1. Specifically,
25 error mail is accompanied with all of the contents of E-mail (hereinafter referred to as original mail) transmitted by the sender. The header of this original

message always contains a fixed message such as "X-mailer: Internet FAX" (hereinafter referred to as "header fixed message"). In addition, document information of the body always includes a message such as "this mail accompanied image data of ITFF-format" (hereinafter referred to as "document fixed message"). Moreover, the first portion of text-format image data of the body always includes a fixed code (hereinafter referred to as "image data fixed coded") such as "SUqk ..."

Therefore, the error mail body contains error-related information, original message header and error mail body. This also includes a header fixed message, document fixed message, and image data fixed code.

IFAX disclosed by the above-mentioned Publications collates the header fixed message, document fixed message and image data fixed code, respectively, and if all of them agree, it judges that the received mail data is error mail.

Though a mail server generates error mail, there is a kind of the mail server that rewrites the content of original message. More specifically, the mail server rewrites a boundary that indicates a divider for mail data structure. The rewriting of boundary has a problem in which identification of error mail cannot be performed correctly by the conventional method.

The following will explain the principle. The

header defines the boundary. For example, "--+MGCS-
+-" is defined as a boundary. Then, in according to this
definition, "--+MGCS-+-" is placed at the boundary
between the respective portions (header, error-related
5 information, and the like) so as to divide the structure
of each portion. Then, a certain server performs
processing for rewriting this "--+MGCS-+-" to another
one at an error mail generating time. In this processing,
processing for rewriting one in which "--+MGCS-+-" is
10 written at the original message is carried out as well
as the header. The reason why this rewrite processing
is performed is unclear, but the server that carries out
such processing exists resultantly.

In the prior art, in the case of processing error
15 mail generated by this server, the IFAX judges that the
mail is one that is transmitted by itself when the IFAX
checks on the boundary at the original message of re-
ceived error mail and this boundary is the same as the
self boundary. However, since the boundary is rewritten,
20 it is judged that this is not the data has been transmitted
by the IFAX, so that determination of error mail cannot
be correctly carried out.

If such a mistake occurs, error mail is printed out
without distinguishing it from normal E-mail and the
25 large amount of information, which is incomprehensible
and unnecessary to the receiver, is printed out. As a
result, the user cannot identify the original document

and this will result in a waste of resources such as recording paper.

SUMMARY OF THE INVENTION

The present invention relates to an image receiving
5 apparatus capable of performing identification of error
mail more correctly, and its method.

In order to solve the above-mentioned problem, the
present invention identifies error mail based on whether
or not received mail data includes a character string
10 that the sender of error mail may describe in a sender
field.

Many of senders of error mail such as mail servers
describe predetermined character strings such as "DE-
AMON", "DELIVERY" and the like. For this reason, it is
15 analyzed whether or not these character strings are
included in received mail data. If they are included,
it is identified that received mail is error mail. This
makes it possible to identify error mail automatically.
In addition, it is possible to identify error mail with
20 reliability even if the mail server does not append
original message to the error mail without rewriting the
original message.

Moreover, the apparatus of the present invention
determines whether received mail data is multipart
25 structure or single-part structure. Then, if it is
multipart structure, the apparatus of the present
invention searches an original message part accompanied

with an original message, and checks whether or not an image data fixed code is included at the head of image data part of this original message part. While, if it is single-part structure, the apparatus of the present invention scans received mail data and searches the image data fixed code.

Some mail servers generate error mail with the multipart structure and append the original message to the accompanying file part, and others generate error mail with the single-part and include the content of original message in error mail as it is. Since the present invention identifies error mail by the method, which is suitable for each structure, after determining the structure of received mail data, it is possible to identify error mail more surely.

BRIEF DESCRIPTION OF THE DRAWINGS

The above and other objects and features of the invention will appear more fully hereinafter from a consideration of the following description taken in connection with the accompanying drawing wherein one example is illustrated by way of example, in which;

FIG. 1 is a conceptual view showing a network system in which the Internet facsimile apparatus according to the embodiment of the present invention operates;

FIG. 2 is a block diagram showing hardware of the Internet facsimile apparatus according to the above

embodiment;

FIG. 3 is a block diagram showing the basic functions of the Internet facsimile apparatus according to the above embodiment;

5 FIG. 4 is a block diagram showing the configuration relating to error mail identification and error processing in the Internet facsimile apparatus according to the above embodiment;

10 FIG. 5 is a view showing one example of the original message, which is transmitted by the Internet facsimile apparatus according to the above embodiment;

FIG. 6 is a view showing one example of error mail, which is received by the Internet facsimile apparatus according to the above embodiment;

15 FIG. 7 is a block diagram showing an error mail identifying section of the Internet facsimile apparatus according to the above embodiment;

20 FIG. 8 is a flowchart showing each step of reception processing for received mail data in the Internet facsimile apparatus according to the above embodiment;

FIG. 9 is a flowchart showing processing when error mail is multipart mail in the Internet facsimile apparatus according to the above embodiment;

25 FIG. 10 is a flowchart showing processing when error mail is single-part mail in the Internet facsimile apparatus according to the above embodiment; and

FIG. 11 is a schematic view of error mail, which

is output by IFAX in the above embodiment.

DETAILED DESCRIPTION OF THE
PREFERRED EMBODIMENTS

With reference to the accompanying drawings, an
5 embodiment of the present invention will now be explained
in detail below.

FIG. 1 is a conceptual view showing a network system
in which the Internet facsimile apparatus according to
the embodiment of the present invention operates.

10 An Internet facsimile apparatus 1 (hereinafter
referred to as IFAX) according to the above embodiment
is connected to a local area network (LAN) 2. A mail server
3 and a personal computer (PC) 4, which are installed in
the same local area as the IFAX 1, are connected to the
15 LAN 2. In addition, the LAN 2 is connected to the Internet
5. A mail server 7, an IFAX 8, and a PC 9 are connected
to this LAN 6. Moreover, IFAX 1 is connected to a public
switched telephone network (PSTN) 10 and can perform
facsimile communication with G3 FAX 11 via PSTN 10.

20 IFAX 1 transmits and receives image data between,
for example, the IFAX 8 and the IFAX 1 by use of e-mail.
First, E-mail is transmitted to the mail server 3 on the
transmitting side. The mail server 3 on the transmitting
side transfers E-mail to the mail server 7 on the receiving
25 side. The mail server 7 on the receiving side stores this
E-mail. The IFAX 8 on the receiving side accesses the mail
server 7 on the receiving side, and receives E-mail. Here,

if the address of E-mail transmitted by IFAX 1 is incomprehensible, the mail server 3 on the transmitting side sends error mail back to IFAX 1.

FIG. 2 is a block diagram showing hardware of the Internet facsimile apparatus according to the above embodiment. A CPU 21 executes a program, and performs control of the entirety of the apparatus. A ROM 22 stores the program to be executed by the CPU 11.

A RAM 23 has a work area where the program is executed, and a buffer area for temporarily storing various data such as E-mail, an image file, etc.

A FAX voice processing section 24 modulates facsimile data and a voice and outputs modulated data to PSTN 10, and demodulates modulated data received from the PSTN 10 to facsimile data and voice data.

A scanner 25 scans an original, and obtains image data. A printer 26 prints out various data including image data received.

A LAN interface 27 executes a protocol necessary for transmitting and receiving data on the LAN 2.

A panel control section 28 comprises dial keys and a touch panel, and receives operations such as a specification of a communication partner, an instruction of a transmission start, etc., which are executed by an operator.

A data storage section 29 stores received mail data. The data storage section 29 is composed of a secondary

storage device such as nonvolatile memory, e.g., a flash memory or a hard disk.

Next, the functions of IFAX of the embodiment of the present invention will be explained with reference to FIG.

5 3. FIG. 3 is a block diagram showing the basic functions of IFAX according to the above embodiment.

This IFAX transmits and receives E-mail using LAN interface 27 via the computer network such as LAN 2. More specifically, an image compressing section 31 compresses
10 raw image data (for example, bit map data) scanned by the scanner 25 in a compression format such as HM so as to obtain a compressed file. The compression is performed in unit of one page of the original. Next, a TIFF conversion section 32 converts these compressed files to
15 one ITFF (Tag Image File Format) file. An E-mail generation section 33 converts the TIFF file appends this ITFF file to multipart mail in accordance with for example MIME (Multipurpose Internet Mail Extension). By processing so far, image data is converted to E-mail
20 format. A mail transmitting section 34 transmits this E-mail via LAN interface 27 using mail transfer protocols such as SMTP and the like.

On the other hand, a mail receiving section 35 receives E-mail via the LAN interface 27 using mail
25 transfer protocols such as SMTP, POP (Post Office Protocol, etc. This E-mail is multipart mail, and the TIFF file is converted to character data, that is, text code, and

appended to the accompanying file part. A binary
converting section 36 binary converts the text code of
the accompanying file part of the multipart mail so as
to obtain a TIFF file. A TIFF expanding section 37 opens
5 this TIFF file. An image decompressing section 38
decompresses compressed data included in this TIFF file
to obtain row image data. By processing so far, E-mail
is converted to an image data format. The binary
converting section 36, TIFF expanding section, and image
10 decompressing section 38 are hereinafter called format
converting section in a word. This row image data is
printed out by the printer 26.

FIG. 4 is a block diagram showing the configuration
relating to error mail identification and error
15 processing in the Internet facsimile apparatus in the
above embodiment.

Mail data received by the mail receiving section 35
is stored to the data storage section 29. An error mail
identifying section 41 determines whether or not received
20 mail data is error mail. If received mail data is not error
mail, the error mail identifying section 41 commands a
format converting section 42 to convert E-mail to image
data. On the other hand, if received mail data is error
mail, the error mail identifying section 41 commands the
25 respective sections to be explained below to execute error
processing.

A specific information extracting section 43 is a

filter that determines whether or not a specific code is included in received mail data, and extracts specific information from error mail. Herein, specific information, for example, is information relating to error, image
5 information of the original document, information of error host, cause of error, information relating to date and time.

A data editing section 44 performs data edition to combine image data, which is normally output to another
10 page, into one page, and to delete a part of image data over a plurality of pages and contain it on one page. In addition, the data editing section 44 adds a message such as an error message, and the like to image data.

A print controlling section 45 controls the printer
15 26 to print out image data. A display 46 is provided in the panel control section 28 and displays the error message and the like.

FIG. 5 is a view showing one example of the original message, which is transmitted by IFAX according to the
20 above embodiment. FIG. 6 is a view showing one example of error mail, which is received by IFAX according to the above embodiment.

As shown in FIG. 5, a header 51 includes [X-mailer:]
field 52. In a case of the original message transmitted
25 by IFAX 1, a fixed message, that is, "Internet FAX" is described in [X-mailer:] field. This fixed message is hereinafter referred to as "header fixed message." IFAX

1 stores this header fixed message.

A text part (document information) 54 of a body 52 of the original message includes a fixed message such as "this mail is accompanied with image data of TIFF
5 format." This fixed message is called "document fixed message." Moreover, image data is incorporated into an image data part 55 of a body 53 in text format. The first part of this image data contains a fixed code such as [SUqk...]. This fixed code is hereinafter called "image
10 data fixed code." IFAX 1 stores these fixed message and fixed code.

Furthermore, as illustrated in FIG. 5, [X-mailer:] field is not generally included in a header 61 of error mail. Moreover, specific character strings (for example,
15 DEAMON, mailer, DELIVERY, SYSTEM, POST MASTER, and the like) are described in [From:] field 62 of the header 61.

A body 63 of error mail includes all of information 64 relating to error, and original message 65 as they
20 are. Therefore, the original message 65 includes the above-mentioned header fixed message, document fixed message, and image data fixed code.

This error mail has the multipart structure in accordance with MIME, and the like. Therefore, the header
25 61 contains a character string, which indicates that this mail is the multipart, for example, "Content-Type:multipart/mixed."

In addition, boundaries 66 and 67, which show the border between the parts, are inserted to the heads of parts 64 and 65 of the body 63 of error mail, respectively. After the boundaries 66 and 67, sub-headers 68 and 69 are added, respectively. In the sub-headers 68 and 69, specific character strings that show the kinds of parts 64 and 65, are included. In the case of text part 64, "text/plain" is described in the sub-header 68. In the case of original message part 65, "message/rfc822" is described in the sub-header 69.

FIG. 7 is a block diagram showing the error mail identifying section of the Internet facsimile apparatus according to the above embodiment. The error mail identifying section 41 comprises four sections, which analyze E-mail data, that is, a header analyzing section 100, multipart mail analyzing section 200, original message analyzing section 300, single-part mail analyzing section 400, and determination processing section 500.

The header analyzing section 100 analyzes the header of received mail data. The header analyzing section 100 comprises a header extraction section 101, [X-mailer:] field analyzing section 102, [From:] field analyzing section 103, mail structure analyzing section 104, and character string list table 105.

The [X-mailer:] field analyzing section 102 checks the presence or absence of [X-mailer:] field in received

mail data. The [From:] field analyzing section 103 checks whether or not the character string included in the [From:] field of header matches the character string registered in the character string list table 105. The character string list table 105 registers the character string that may be used in [From:] field by the mail server.

The mail structure analyzing section 104 checks whether or not the header includes the character, which indicates that received mail data is the multipart structure, e.g., "Content-Type: multipart/mixed."

The multipart mail analyzing section 200 has a text part searching section 201 and an original message part searching section 202 so that they search that the text part and original message part are included respectively when received mail data is the multipart structure. In a case where a character string, which indicates that the corresponding part is text data, for example, "text/plain" is included in the sub-header of a certain part contained in the body of received mail data, the text part searching section 201 judges that this part is the text part. Furthermore, in a case where a character string, which indicates that the corresponding part is the original message, for example, "message/rfc 822" is included in the sub-header of a certain part contained in the body of received mail data, the text part searching section 202 judges that this part is the original message

part.

The original message analyzing section 300 comprises an original message header extracting section 301, [X-mailer:] field analyzing section 302, fixed boundary
 5 fixed code comparing section 303, image data fixed code comparing section 304, and fixed data table 305. The boundary fixed code is a character string, which is used as a boundary in the original message by IFAX at a transmitting time. For example, "+-+MGCS+-+" can be
 10 named, but this is not limited. The boundary fixed code and image data fixed code are registered in the fixed data table 305.

The single-part mail analyzing section 400 comprises an image data fixed code searching section 401.
 15 In a case where received mail data is error mail and single-part structure, this image data fixed code searching section 401 scans the entirety of received mail data to search an image data fixed code.

The determination processing section 500 receives
 20 the analytical results from the header analyzing section 100, multipart mail analyzing section 200, original message analyzing section 300, and single-part mail analyzing section 400, and distinguishes between error mail and normal E-mail.

25 The following will explain processing of received mail data in the above-configured IFAX. FIG. 8 is a flowchart showing each step of reception processing for

received mail data in IFAX according to the above embodiment.

In step (hereinafter referred to as ST) 801, when the mail receiving section 35 shown in FIG. 3 receives E-mail, the header extraction section 101 of the header
5 analyzing section 100 shown in FIG. 7 extracts the header (61 in FIG. 6) from received mail data in ST802.

Next, in step ST803, [X-mailer:] field analyzing section 102 checks whether or not [X-mailer:] field is
10 included in the header 61. The determination processing section 500 determines whether or not [X-mailer:] field is included in the header 61 based on this analytical result.

Here, if [X-mailer:] field is not included in the
15 header 61 in step ST803, a possibility arises where this received mail data has been transmitted by the mail server. In other words, there is a high possibility that this received mail data will be error mail. Then, the determination processing section 500 moves processing
20 to ST804.

Also, if [X-mailer:] field is included in the header 61, A possibility that received mail data will be error mail is remained. Here, in ST805, [From:] field analyzing section 103 extracts [From:] field 62 from the header
25 61. Next, in step S806, [From:] field analyzing section 103 compares this [From:] field with a character string registered in the character string list table 105.

The character string registered in the character string list table 105 is one that may enter [From:] field indicating the sender. Therefore, if both agree, there is high possibility that received mail data will be error mail. Then, the determination processing section 500 moves processing to ST804.

While, if both do not match, received mail data is normal E-mail and there is no possibility that it is error mail. For this reason, in ST808, the determination processing section 500 determines that received data is not error mail, and performs normal reception processing in ST809. In normal reception processing, the entirety of received mail data is printed out by the printer 26. In addition, if IFAX 1 has a display capable of displaying image data and the like, received mail data may be displayed on this display, and received mail data may be transferred to other G3/G4 facsimile by facsimile communications using normal PSTN.

In ST804, the mail structure analyzing section 104 shown in FIG. 7 analyzes the header 61 to check whether received mail data is the multipart structure or the single-part structure. If the header 61 contains a character string, which indicates that received mail data is the multipart structure, (for example, "Content-Type:multipart/mixed"), the mail structure analyzing section 104 determines that this received mail data is the multipart mail structure. While, if the

header 61 contains a character string, which indicates that received mail data is the single-part structure, (for example, "Content-Type:text/plain), the mail structure analyzing section 104 determines that this
5 received mail data is the single-part mail structure.

In ST804, if received mail data is the multipart structure, the determination processing section 500 performs processing shown in FIG. 9. While, if received mail data is the single-part structure, the
10 determination processing section 500 performs processing shown in FIG. 10.

In the case where received mail data is the multipart structure, received mail data can be analyzed in accordance with this multipart structure to perform
15 processing. FIG. 9 is a flowchart showing processing when error mail is the multipart mail in IFAX according to the above embodiment. In ST901, the text part searching section 201 of multipart mail analyzing section 200 searches a text part from received mail data. This search
20 for text part is performed based on whether or not the sub-header contains a specific character string (for example, "text/plain"), which indicates that the corresponding part is the text part.

The mail server normally puts information relating
25 to error into the text part when generating error mail. For this reason, if there is no text part, this received mail data is not considered as error mail. Then, if there

is no text part in ST902, the determination processing section 500 does not determine that received mail data is error mail in ST903, and performs normal reception processing in ST904.

5 On the other hand, if there is the text part in ST902, the original message part searching section 202 searches the original message part in received message data in ST904. This search for original message part is performed based on whether or not the sub-header contains a
10 specific character string (for example, "message/rfc822"), which indicates that the corresponding part is the original message part.

 The mail server normally puts the original message into the accompanying file part when generating error
15 mail. For this reason, if there is no original message part, this received mail data is not considered as error mail. Then, if there is no original message part in ST906, the determination processing section 500 does not determine that received mail data is error mail in ST903,
20 and performs normal reception processing in ST904.

 On the other hand, if there is the original message part in ST906, it is checked whether or not data of the original message part is the same as E-mail data transmitted by IFAX by the following processing.

25 More specifically, in ST907, the original message header extracting section 301 extracts the header 51 of original message. Then, the boundary of this header 51

is detected (ST908). Then, the respective parts are identified based on this boundary, it is confirmed whether or not data is TIFF data for each part. First, in ST909, the first part (text part 54 in FIG. 6) is retrieved. Then, 5 in ST910, a fixed sentence, "Tiff/Image", which indicates that TIFF data exists in this part in a sub-header 70, is fixed in the first part. If there is no "Tiff/Image" in the sub-header 70 of the first part, a sub-header 71 of the second part (image part 55 in FIG. 6) is retrieved 10 in ST911. Then, in ST912, "Tiff/Image" of this sub-header 71 is fixed in the second part. If there is "Tiff/Image" in either part, it is determined whether or not it is coincident with image data fixed code (SUqk) in ST913. Then, if it is coincident therewith, processing goes to 15 ST914. If there is no "Tiff/Image" in either part, it is determined that this is not error mail, and normal processing is performed (ST903, 904).

In ST913, the image data fixed code comparing section 304 checks whether or not the character string 20 of the top of the image data part 55 of original message 65 coincides with image data fixed code (SUqk) registered in the fixed data table 305. Here, if both disagree, the determination processing section 500 does not determine that received mail data is error mail in ST903 and performs 25 normal reception processing in ST904 since image data is not TIFF file. In this case, the character string, that is, SUqk is always added to the TIFF file transmitted by

the present apparatus. However, the character string is not limited to the above-mentioned one, and the character string is different depending on the E-mail conversion system.

5 On the other hand, if both agree in ST913, the determination processing section 500 determines that received mail data is error mail in ST914 and performs error processing in ST915 since image data is the TIFF file.

10 Some mail servers generate error mail with the single-part to include the content of original message into error mail as it is. In this case, since it is impossible to analyze the multipart mail shown in FIG. 9, the following processing is performed. FIG. 10 is a
15 flowchart showing processing when error mail is single-part mail in IFAX according to the above embodiment.

 In ST1001, the image data fixed code searching section 401 of the single-part mail analyzing section 400 searches the image data fixed code with respect to the
20 entirety of received mail data. Since received mail data is the signal-part structure, it is necessary to scan the entirety of received mail data.

 In ST1002, the determination processing section 500 determines whether or not there is an image fixed code
25 based on the searching result of image fixed code searching section 401. Here, if there is the image fixed code, the determination processing section 500

determines that received mail data is error mail in ST1003, and performs error processing in ST1004.

While, if there is no image fixed code in ST1002, the determination processing section 500 does not
 5 determine that received mail data is error mail in ST1005, and performs normal reception processing in ST1006.

Error processing in ST912 and ST1004 is performed as follows. The specific information extracting section
 43 shown in FIG. 4 extracts information relating to error
 10 and specific information of the original document and the like from received mail data. The extracted specific information is converted to image data by the format converting section 42. The data editing section 44 edits
 converted image data to be contained in one page. The
 15 edited data is printed by the print controlling section 44 using the printer 26. In this case, the entirety or part of image data of the original document may be extracted from received mail data.

FIG. 11 is a schematic view of error mail, which is
 20 output by IFAX in the above embodiment. Error information and the original document are edited to be contained in one page and output, thereby preventing a waste of recording paper. In addition, the receiver can know which original document fails in transmission and by what error
 25 such failure is caused.

Moreover, transfer to G3/G4 facsimile is included as an output of edited data in addition to the above-

mentioned printing. In other words, the specific information extracting section 43 extracts information relating to error and image data of the original document from received mail data. The extracted data is converted to facsimile data by the format converting section 42. 5 The converted facsimile data is edited to be contained in one page by the data editing section 44. The edited data is modulated by the FAX and voice processing section 24, and the resultant data is transmitted to G3 facsimile 10 11 via PSTN 10.

Furthermore, for example, a message to the effect that error mail is received is added to the edited data to generate E-mail and generated E-mail can be transmitted to, for example, a manager.

15 Moreover, it is possible to display the message to the effect that error mail is received is displayed on the display 46 provided in the panel control section 28 shown in FIG. 4.

In the above embodiment, the document fixed message 20 is not used in identifying error mail. However, in the analysis of original message in ST907 to ST910, it is possible to identify that received mail data is error mail when there is the document fixed message in the original message in addition to ST908 and ST909 or ST910 or in place 25 of either step.

The above-explained IFAX 1 according to the embodiment identifies error mail based on whether or not

received mail data includes a character string that the sender of error mail may describe in a sender field, e.g., [From:] field. This makes it possible to identify error mail surely even when error mail is identified based on coincidences of the header fixed messages, document fixed messages, or image data fixed codes, and the mail server, which is incapable of performing identification, does not accompany with error mail as it is. More specifically, the error mail is transmitted from the server, which rewrites the portion (boundary="+-+MGCS+-+") that defines the boundary character string of the header of the original message.

Moreover, IFAX 1 according to the above embodiment determines whether or not received mail data is the multipart structure or single-part structure. Then, if it is the multipart structure, IFAX 1 searches the original message part to which the original message is appended, and checks whether or not the image data fixed code is included in the top of the image data part of this original message part. On the other hand, if it is the single-part structure, IFAX 1 scans received mail data and searches the image data fixed code. As a result, according to the above-mentioned embodiment, error mail is identified by the method suitable for each structure after the structure of received mail data structure is determined, and this makes it possible to identify error mail more surely.

As explained above, IFAX according to the above embodiment can distinguish error mail from normal E-mail. Then, when error mail is received, IFAX can extract necessary information from received mail data, edit
5 extracted data as required, and output it. This allows resources such as recording paper to be saved.

In addition, according to the above embodiment, it is determined whether or not a predetermined character string exists in [From:] field. If there is no
10 predetermined character string, it is judged whether or not data is error mail based on coincidences the image data fixed codes. However, the predetermined character string exists in at least [From:] field, data may be determined as error mail to simplify processing.

15 A criterion of judgment on error mail will be supplementary explained. In ST803, the presence or absence of X-mail filed is judged. If there is no X-mailer filed, there is a possibility that data will be error mail. X-mailer filed is generated by software and added, and
20 the server does not generate it. Error mail is generated by the server and returned to the sender. In many cases of error mail, [X-mailer:] field does not exist.

In ST807, it is judged whether or not the content of [From:] field indicates the predetermined one
25 (character string). If the predetermined character string (sender) is described in [From:] field, the data is judged as error mail. In the case of generating error

mail, the character string described in [From:] field is determined to some degree.

In ST902, the existence or absence of text part is determined. Error mail always exists in the text part.
5 Therefore, when there is no text part, the data is not judged as error mail.

In ST906, the existence or absence of original message part is determined. In many cases, the original message is added to error mail. Therefore, when there is
10 no original message part, the data is not judged as error mail.

In ST909, the existence or absence of SUqk is determined. Transmitting data of IFAX is always sent with the accompanying file, so that the accompanying file is
15 naturally attached to the error mail. The accompanying file is TIFF and SUqk is added. By detecting the existence of SUqk, it is judged whether or not data is transmitted by IFAX.

According to the above embodiment, error mail can
20 be determined surely based on the above five conditions. However, the present invention is not limited to these. Error mail may be determined based on at least the existence or absence of [From:] field, the existence or absence of [X-mailer:] field and the existence of SUqk.
25 The criterion of judgment on error mail can be effectively performed in order of the existence or absence of [From:] field, the existence or absence of [X-mailer:] field and

the existence of SUqk, existence of text part, existence of original message. Therefore, some conditions may be selected as a criterion of judgment from them.

The above explained the case of IFAX. The present invention, however, can be applied to E-mail apparatuses other than the above. For example, in PC having a facsimile modem built-in or connected thereto, it is possible to recognize whether received mail data is error or delivery status notification mail. In addition, necessary data is extracted from received mail data, extracted data is edited as required, and edited data can be transmitted to G3 facsimile by facsimile communications. Moreover, edited data can be printed out by the printer connected to PC, displayed on the display, and transmitted by E-mail.

Furthermore, it is possible to add a network interface section and a network corresponding unit, which performs the recognition of E-mail, data extraction, and E-mail edition and the like, to the known G3 facsimile as options.

Moreover, even in a case where a network interface section and a network adapter, which performs the recognition of E-mail, data extraction, and E-mail edition and the like, to the known G3 facsimile, the same function as that of IFAX of the embodiment of the present invention can be exerted.

This invention may be conveniently implemented

using a conventional general purpose digital computer or microprocessor programmed according to the teachings of the present specification, as well be apparent to those skilled in the computer art. Appropriate software coding
5 can readily be prepared by skilled programmers based on the teachings of the present disclosure, as will be apparent to those skilled in the software are. The invention may also be implemented by the preparation of application specific integrated circuits or by
10 interconnecting an appropriate network of conventional component circuits, as will be readily apparent to those skilled in the art.

The present invention includes a computer program product which is a storage medium including instructions
15 which can be used to program a computer to perform a process of the invention. The storage medium can include, but is not limited to, any type of disk including floppy disks, optical discs, CD-ROMs, and magneto-optical disks, ROMs, RAMs, EPROMs, EEPROMs, magnetic or optical cards,
20 or any type of media suitable for storing electronic instructions.

The present invention is not limited to the above described embodiments, and various variations and modifications may be possible without departing from the
25 scope of the present invention.

This application is based on the Japanese Patent Application No. HEI11-321411 filed on November 11, 1999,

entire content of which is expressly incorporated by reference herein.

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b7D

What is claimed is:

1. An image receiving apparatus comprising:

a receiver, the receiver receives E-mail data via a computer network;

5 a converter, the converter converts the E-mail data received by the receiver to image data;

a printer, the printer prints the image data; and an identifier, the identifier identifies whether or

not the E-mail data is error mail,

10 wherein the identifier identifies the error mailer based on whether or not received mail data includes a character string that a sender of error mail may describe in a sender field of the E-mail data.

2. The apparatus according to claim 1, further

15 comprising an abstracter, the abstracter abstracts specific information containing image data from the E-mail data if the E-mail data is error mail, wherein the converter converts the specific information to image data, and the printer prints the image data.

20 3. The apparatus according to claim 1, further comprising an editor, the editor edits the image data, wherein if the E-mail data is error mail, the image data is edited and the edited image data is printed.

4. An image receiving apparatus comprising:

25 a receiver, the receiver receives E-mail data via a computer network;

a converter, the converter converts the E-mail data

received by the receiver to image data;

a printer, the printer prints the image data; and

an identifier, the identifier identifies whether or not the E-mail data is error mail,

5 wherein the identifier determines whether the E-mail data is a multipart structure or a single-part structure, if the E-mail data is the multipart structure, the identifier searches an original message part to which an original message is appended and checks whether or
10 not an image data fixed code is included in the top of an image part of the original message part, and if the E-mail data is the single-part structure, the identifier scans the E-mail data to search the image data fixed code.

5. The apparatus according to claim 4, further
15 comprising an abstracter, the abstracter abstracts specific information containing image data from the E-mail data if the E-mail data is error mail, wherein the converter converts the specific information to image data, and the printer prints the image data.

20 6. The apparatus according to claim 4, further comprising an editor, the editor edits the image data, wherein if the E-mail data is error mail, the image data is edited and the edited image data is printed.

7. An image receiving method comprising:
25 receiving E-mail data via a computer network;
 converting the received E-mail data to image data;
 printing the image data; and

identifying whether or not the E-mail data is error mail,

wherein the error mailer is identified based on whether or not received mail data includes a character string that a sender of error mail may describe in a sender
5 field of the E-mail data.

8. The according to claim 7, further comprising abstracting specific information containing image data from the E-mail data if the E-mail data is error mail,
10 wherein the specific information is converted to image data, and the image data is printed.

9. The apparatus according to claim 7, further comprising editing the image data, wherein if the E-mail data is error mail, the image data is edited to be
15 contained in one page, and the edited image data is printed.

10. An image receiving apparatus comprising:
receiving E-mail data via a computer network;
converting the received E-mail data to image data;
20 printing the image data; and
identifying whether or not the E-mail data is error mail,

wherein whether the E-mail data is a multipart structure or a single-part structure is determined, if
25 the E-mail data is the multipart structure, an original message part to which an original message is appended is searched and whether or not an image data fixed code

is included in the top of an image part of the original message part is checked, and if the E-mail data is the single-part structure, the E-mail data is scanned to search the image data fixed code.

5 11. The apparatus according to claim 10, further comprising abstracting specific information containing image data from the E-mail data if the E-mail data is error mail, wherein the specific information is converted to image data, and the image data is printed.

10 12. The apparatus according to claim 10, further comprising editing the image data, wherein if the E-mail data is error mail, the image data is edited to be contained in one page, and the edited image data is printed.

ABSTRACT OF THE DISCLOSURE

An [X-mailer:] field analyzing section checks whether or not [X-mailer:] field is included in a header of received mail data. If [X-mailer:] field is included
5 in the header, there is a possibility that received mail data will be error mail. Then, a [From:] field analyzing section extracts [From:] Field from the header. Next, the [From:] field analyzing section compares [From:] field with a character string registered in a character
10 string list table. If both agree, received mail data is determined as error mail. If both disagree, received mail data is not determined as error mail. This makes it possible to recognize error mail more accurately.

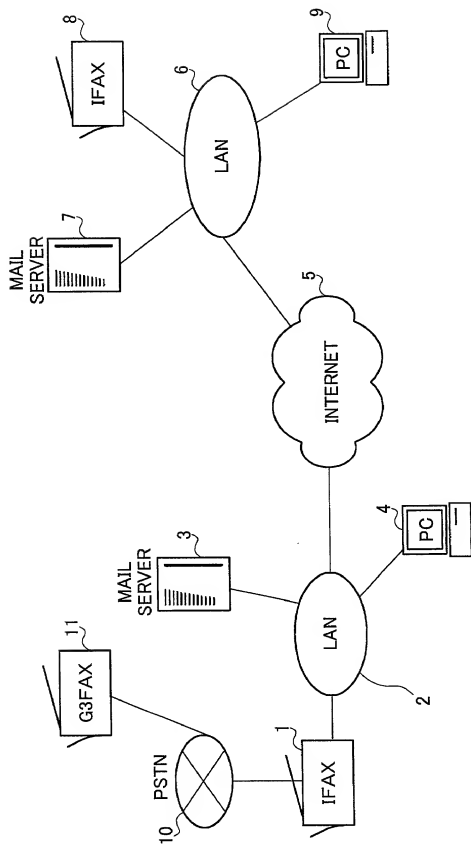


FIG.1

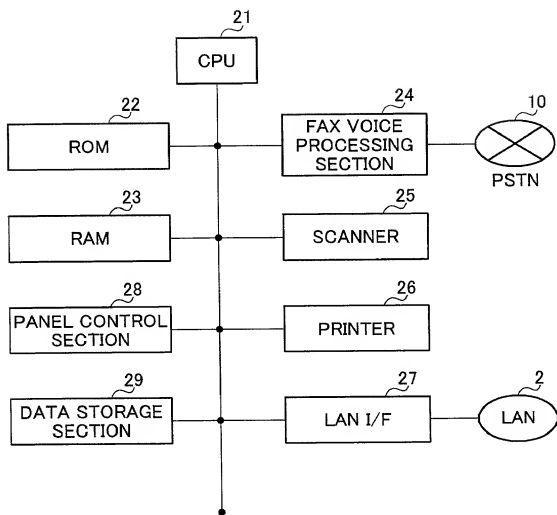


FIG.2

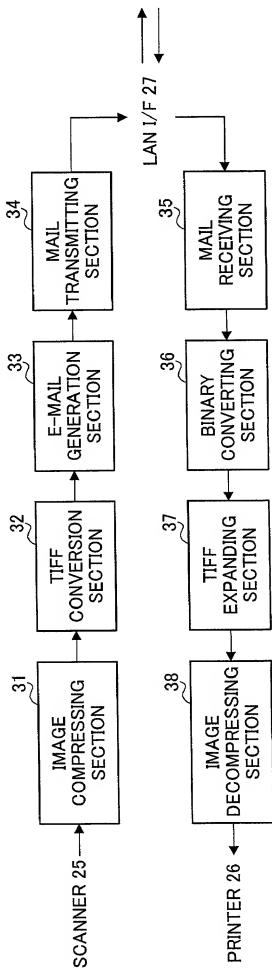


FIG.3

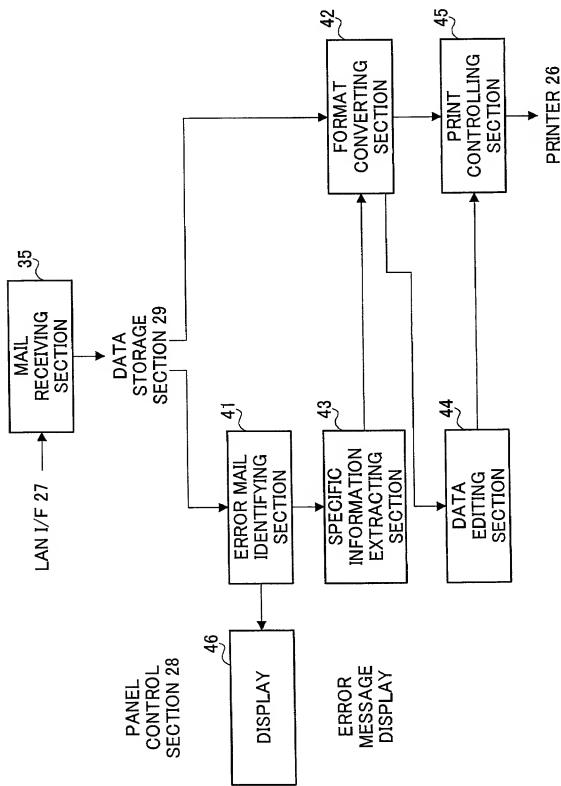


FIG.4

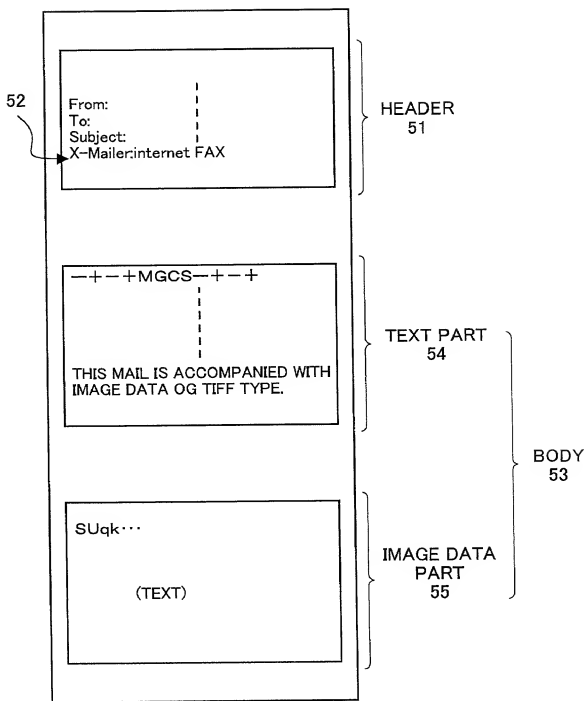


FIG.5

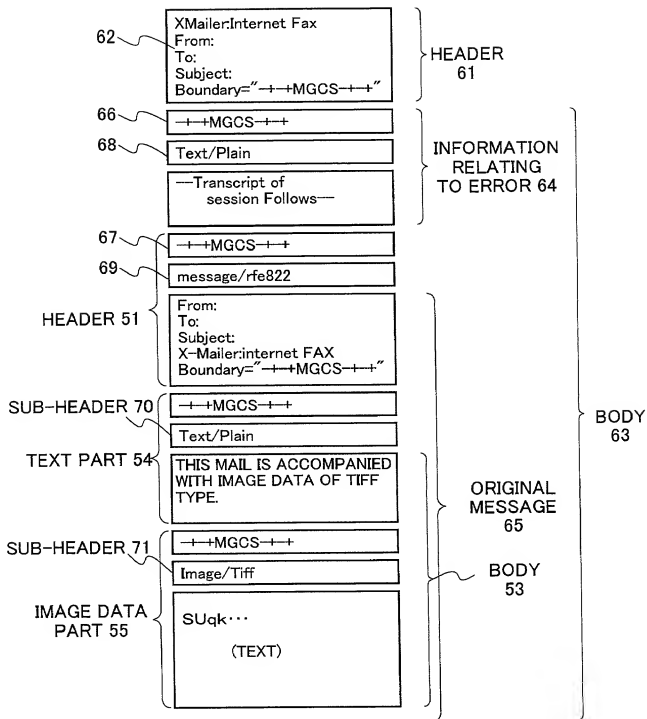


FIG.6

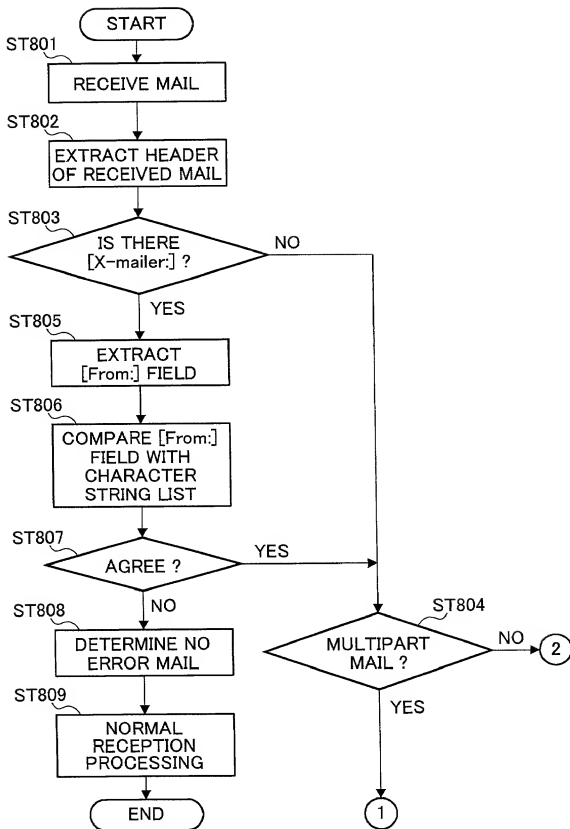


FIG.8

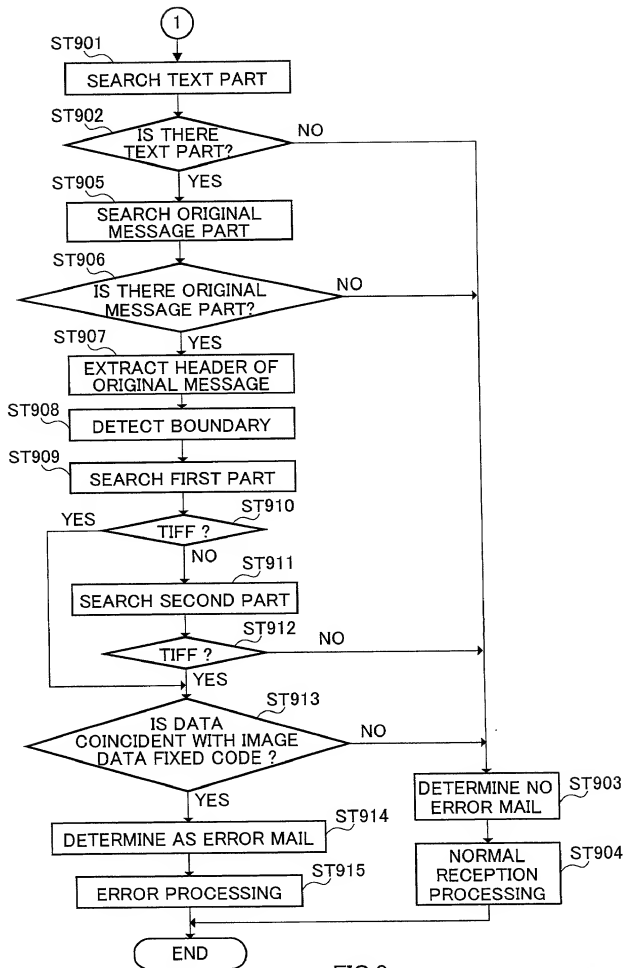


FIG.9

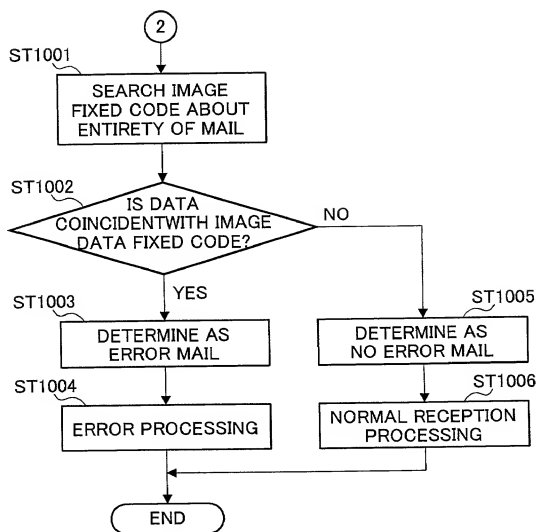


FIG.10

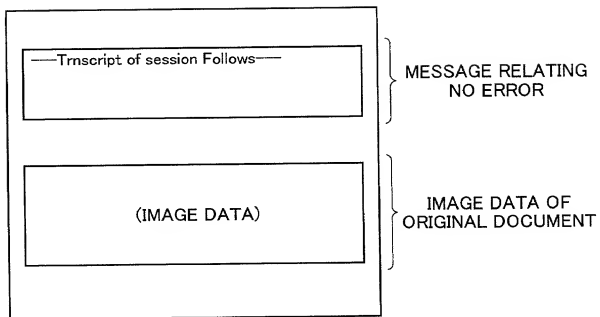


FIG.11

Declaration and Power of Attorney For Utility or Design Patent Application

特許出願宣言書

Japanese Language Declaration

私は、下欄に氏名を記載した発明者として、以下のとおり宣言する:

私の住所、郵便の宛先および国籍は、下欄に氏名に続いて記載したとおりであり、

名称の発明に関し、請求の範囲に記載した特許を求める主題の本来の、最初にして唯一の発明者である(一人の氏名のみが下欄に記載されている場合)か、もしくは本来の、最初にして共同の発明者である(複数の氏名が下欄に記載されている場合)と信じ、

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled

APPARATUS AND METHOD

FOR RECEIVING IMAGE

上記発明の明細書(下記の欄でX印がついていない場合は、本書に添付)は、

☐ 年 月 日に提出され、
米国出願番号 _____ とし、
(該当する場合) 年 月 日に訂正されました。又は、

特許協定条約国際出願番号 _____ とし、
(該当する場合) 年 月 日に訂正されました。

the specification of which is attached hereto unless the following box is checked:

☐ was filed on _____ as
United States Application Number _____
and was amended on _____ (if applicable) or,

PCT International Application Number _____
and was amended on _____ (if applicable)

私は、前期のたとえ補正した請求の範囲を含む前記明細書の内容を検討し、理解したことを陳述する。

私は、連邦規則法典第37編第1条第56項定義されたとおり、特許資格の有無について重要な情報を開示すべき義務があることを認めます。

私は合衆国法典第35部第119条(a-d)項又は第365条(b)項に基づき、下記の外国特許出願又は発明者証出願、或いは第365条(a)項に基づき、少なくとも米国以外の1ヶ国を指名したPCT国際出願の外国優先権を主張し、更に優先権の主張に係る基礎出願の出願日前の出願日を有する外国特許出願、又は発明者証出願或いはPCT国際出願を以下に"なし"の箱に印をつけることにより明記する:

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, §1.56.

I hereby claim foreign priority under Title 35, United States Code §119(a-d) or §365(b) of any foreign application(s) for patent or inventor's certificate, or §365(a) of any PCT international application which designated at least one country other than the United States, listed below. I have also identified below, by checking the "No" box, any foreign application for patent or inventor's certificate, or of any PCT international application having a filing date before that of the application on which priority is claimed:

Prior foreign applications 先の外国出願

Priority claimed 優先権の主張

JP 11-321411	JAPAN	11/November/1999
(Number)	(Country)	(Day/Month/Year Filed)
(番号)	(国名)	(出願の年月日)
_____	_____	_____
(Number)	(Country)	(Day/Month/Year Filed)
(番号)	(国名)	(出願の年月日)
_____	_____	_____
(Number)	(Country)	(Day/Month/Year Filed)
(番号)	(国名)	(出願の年月日)

<input checked="" type="checkbox"/>	<input type="checkbox"/>
Yes	No
あり	なし
<input type="checkbox"/>	<input type="checkbox"/>
Yes	No
あり	なし
<input type="checkbox"/>	<input type="checkbox"/>
Yes	No
あり	なし

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☐ Additional foreign application numbers are listed on a supplemental priority sheet attached hereto.

Japanese Language Utility or Design Patent Application Declaration

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I hereby claim the benefit under Title 35, United States Code §119(e) of any United States provisional application(s) listed below.

(Application Number)
(番号)

(Day/Month/Year Filed)
出願の年月日

(Application Number)
(番号)

(Day/Month/Year Filed)
出願の年月日

(Application Number)
(番号)

(Day/Month/Year Filed)
出願の年月日

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(Application No.)
(出願番号)

(Day/Month/Year Filed)
(出願の年月日)

(現況)
(特許済み、係属中、放棄済み)

(Status)
(patented, pending, abandoned)

(Application No.)
(出願番号)

(Day/Month/Year Filed)
(出願の年月日)

(現況)
(特許済み、係属中、放棄済み)

(Status)
(patented, pending, abandoned)

☐ その他の合衆国又は国際特許出願番号は別紙の追補優先権欄にて記載する。

☐ Additional U.S. or international application numbers are listed on a supplemental priority sheet attached hereto.

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Japanese Language Utility or Design Patent Application Declaration

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顧客番号 7055

現在選任された弁護士は下記の通りである。

Neil F. Greenblum
Bruce H. Bernstein
James L. Rowland
Arnold Turk

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住所	Residence		
国籍	Citizenship		
郵便の宛先	Post Office Address		

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(Supply similar information and signature for third and subsequent joint inventors.)